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PROBLEMS.

48. Proposed by SETH PRATT, C. E., Assyria, Michigan.

What is the interest of $500 for 10 years at 10% per annum, when the intervals of compounding are infinitely small?

49. Proposed by P. S. BERG, Apple Creek, Ohio.

A man having lent $6000 at 6% interest, payable quarterly, wishes to receive his interest in equal proportions monthly, and in advance; how much ought he to receive each month?

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GEOMETRY.

Conducted by B.F.FINKEL, Kidder, Missouri. All Contributions to this department should be sent to him.

SOLUTIONS OF PROBLEMS.

36. Proposed by O. W. ANTHONY, Mexioc, Missouri.

From two points, one on each of the opposite sides of a parallelogram, lines are drawn to the opposite vertices. Through the points of intersection of these lines a line is drawn. Prove that it divides the parallelogram into two equal parts.

II. Solution by LEONARD E. DICKSON, M. A., Fellow in Mathematics, University of Chicago.

The line in question IK will cut the parallelogram into two equal parts if it is proved to pass through O, the intersection of the diagonals. The latter theorem is true for any quadrilateral (Pappus, *Mathematicae Collectiones*, VII, p. 139).

If a hexagon $AB'CA'BC'$ has its summits of even order upon one straight line and those of odd order upon another, the three pairs of opposite sides (AB' and $A'B$, BC' and $B'C$, CA' and $C'A$) intersect in three points on a straight line. See Cremona for proof. But even this is only Pascal's theorem for a hexagon inscribed in a conic, when the latter degenerates to a pair of straight lines.

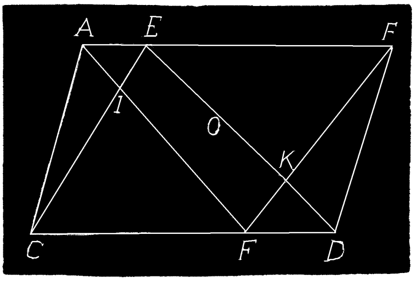

Fig. 1.

Analytical proof for parallelogram: